
TB Control in San Francisco
2002
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“Knowing is not enough; we must apply. Willing is not enough; we must do.”

-- Goethe

Ending Neglect, Institute of Medicine Report

SF TB Control: Goals

- Find and treat all cases to completion
- Stop transmission
- Prevent TB in those at greatest risk of disease (especially contacts)

Today's Report: Why?

- Regular program evaluation is necessary for tailoring prevention and control efforts.
- To share the progress made within the specific goals and objectives of the current grant cycle.
- To point out areas of program strength and opportunities for improvement.

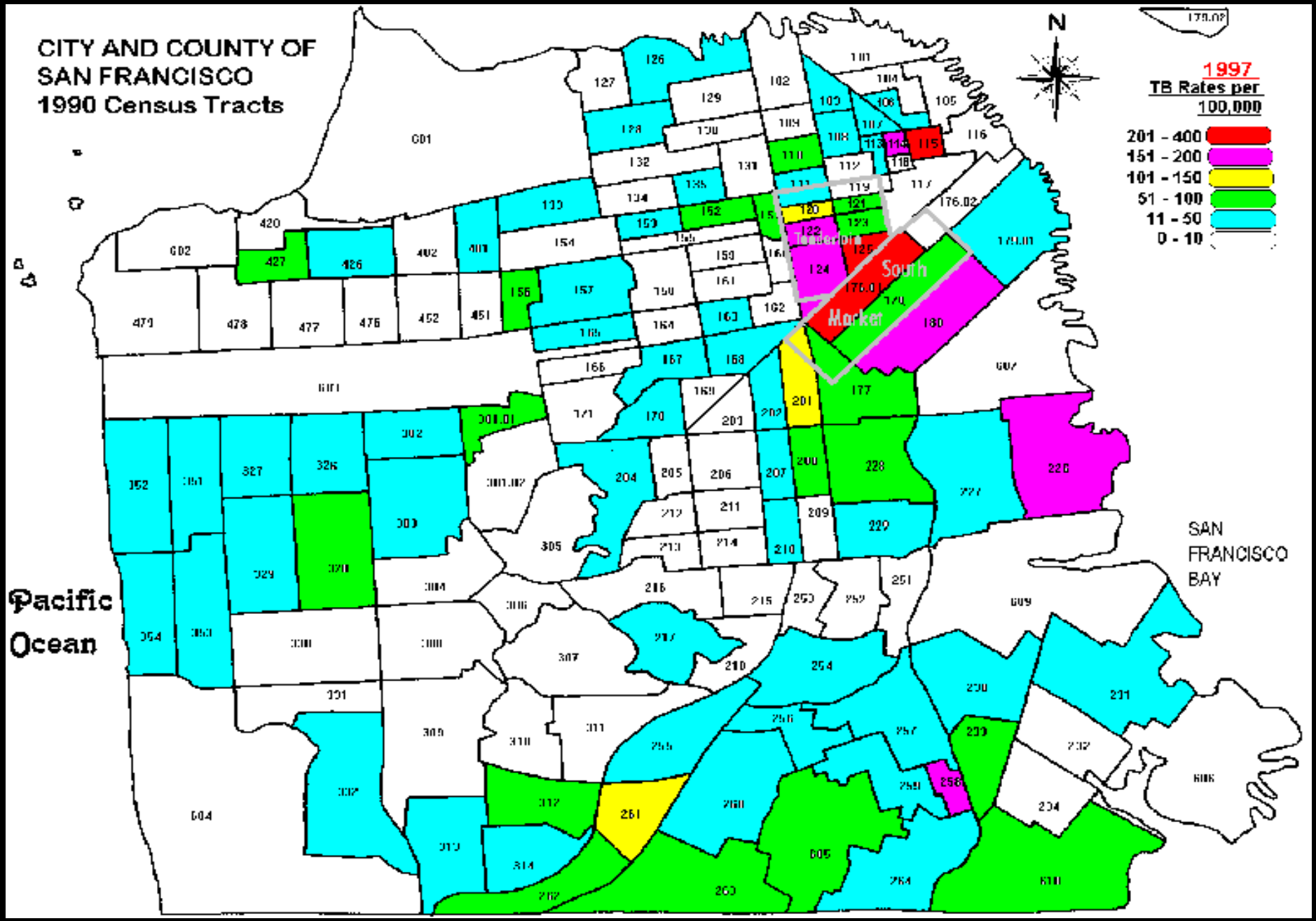
San Francisco Vital Statistics

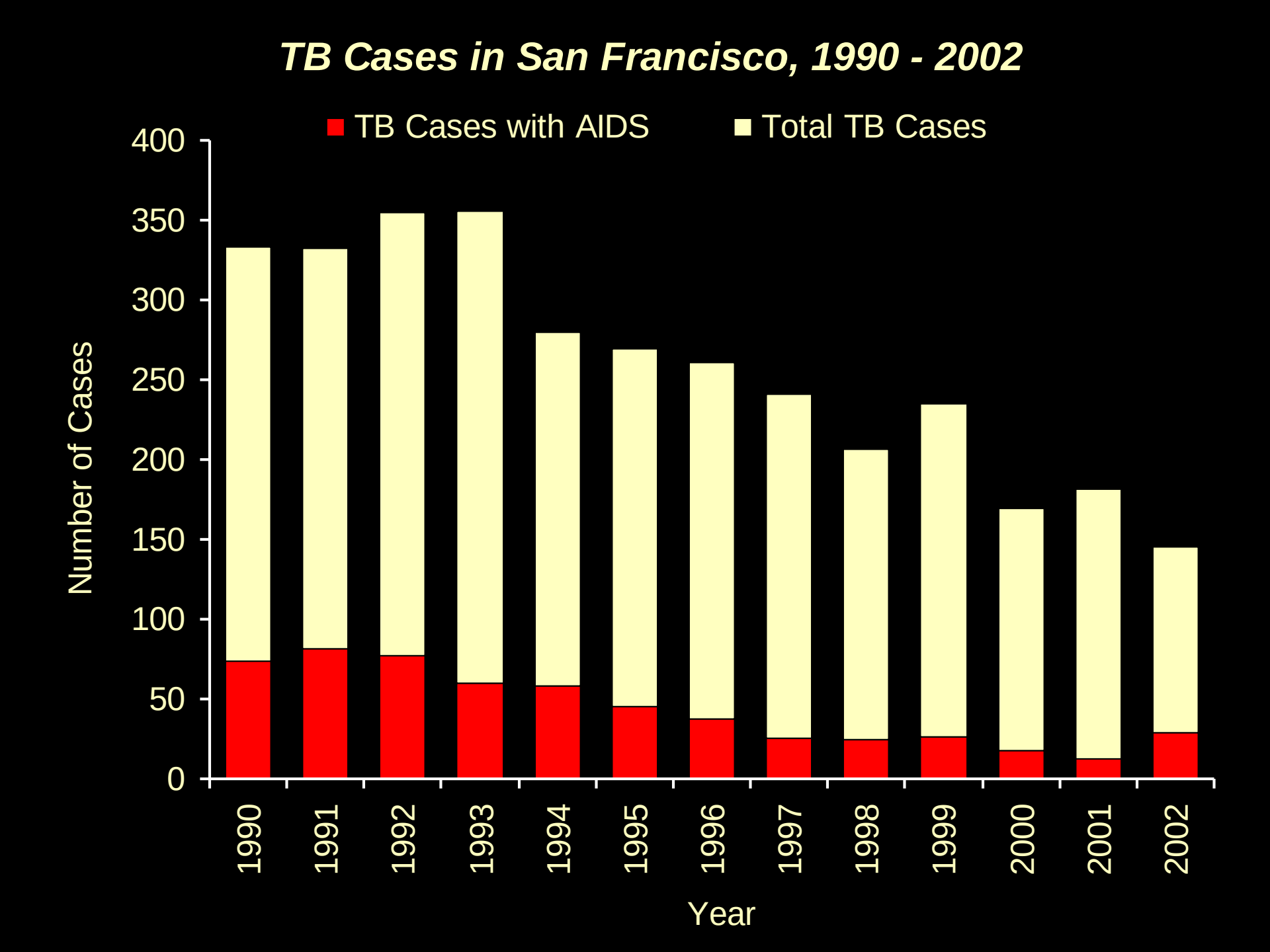
- Population: ~764,049 (2002 projection)
- Size: 49 square miles
- 37% foreign born (~50% LTBI)
- 8000-13,000 homeless (8.5% HIV+, 32% LTBI)
- 17,100 injection drug users (17.5% HIV+)
- Jail bookings per year: 20,000+

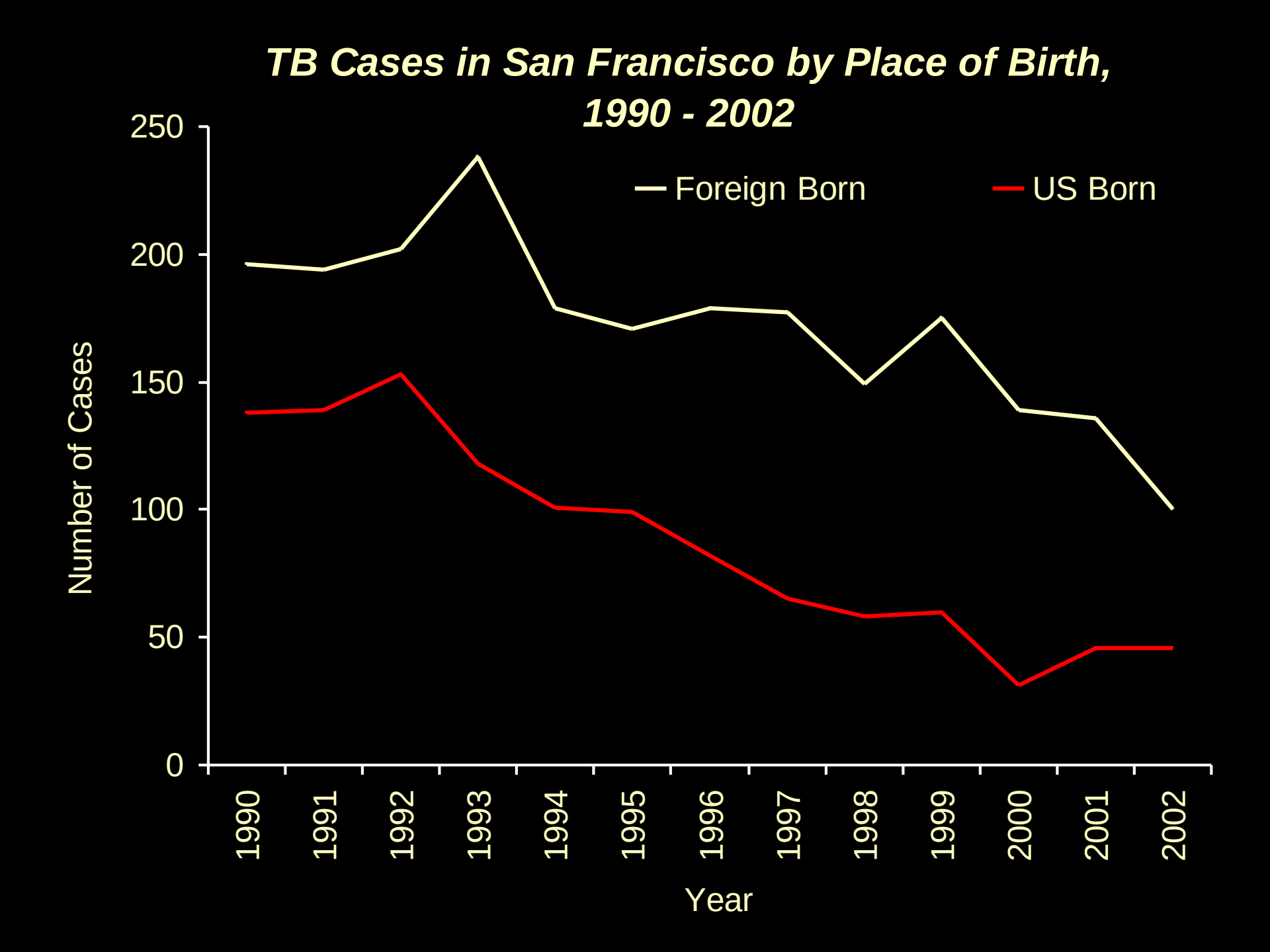
TB in San Francisco, 2002

- 146 new cases reported in 2002 (record lows in 2000, 2001, and 2002)
- Rate of 18.4/100,000 (3.5 times the U.S. rate of 5.2)
- SF has the highest TB rate of any county in CA
- Cases are concentrated in defined city locations with rates as high the developing world (>200/100,000)

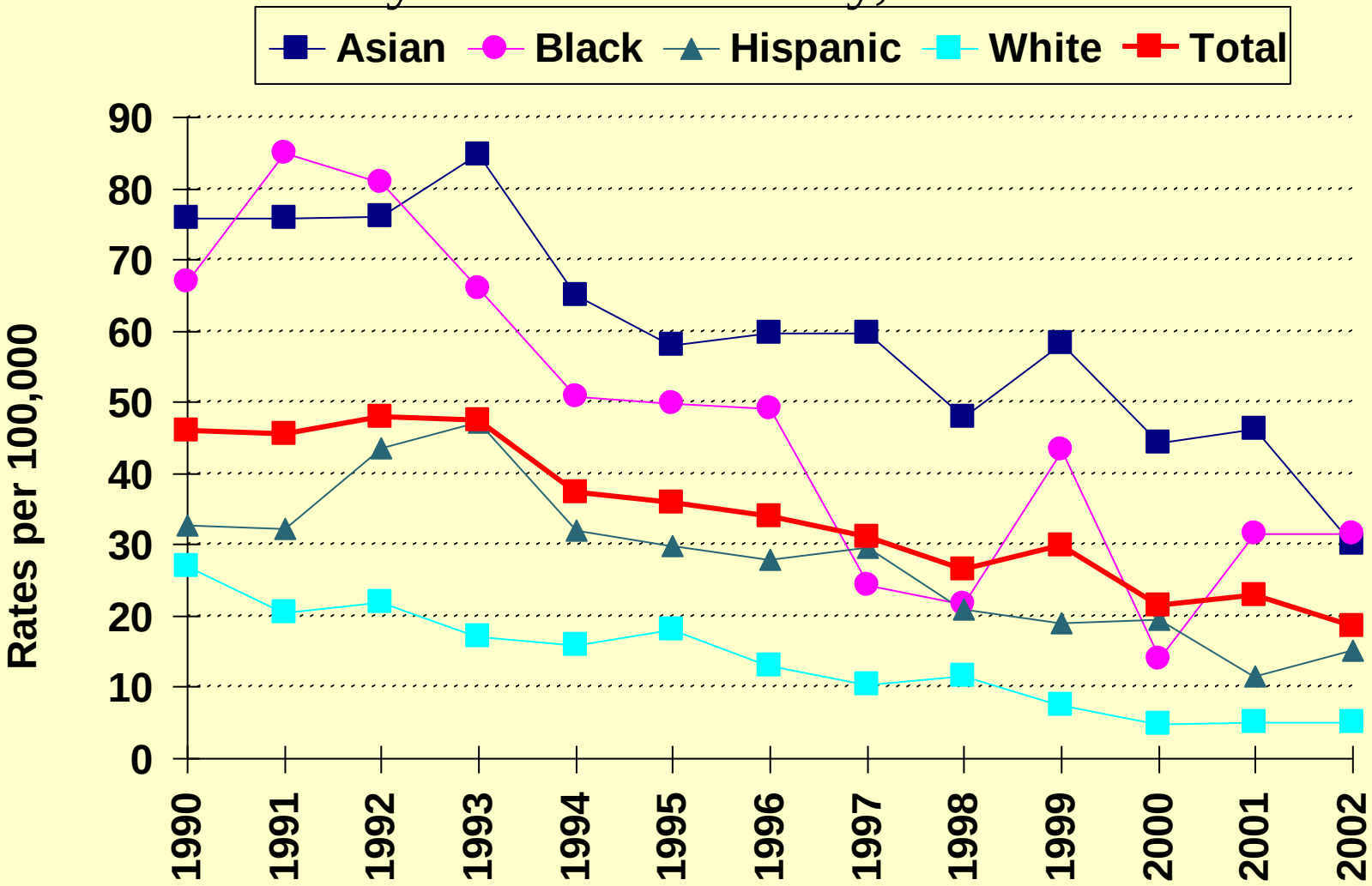
TB Rates in San Francisco, 1997

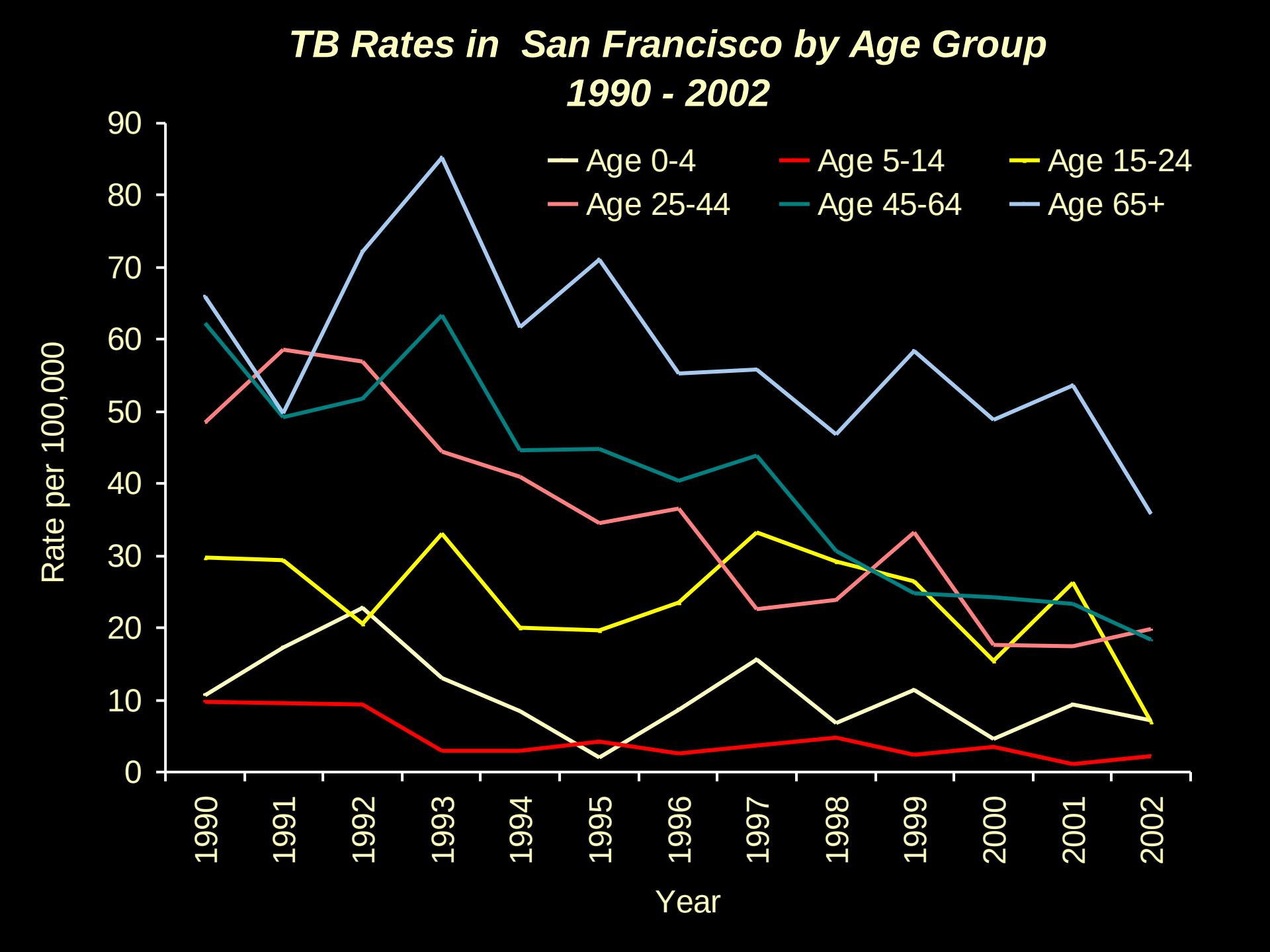



TB Cases in San Francisco, 1990 - 2002
TB Cases with AIDS
Total TB Cases
Number of Cases
400
350
300
250
200
150
100
50
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
Year


TB Cases in San Francisco by Place of Birth, 1990 - 2002
Foreign Born
US Born
Number of Cases
250
200
150
100
50
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
Year

TB Cases in San Francisco
By Race & Ethnicity, 1990-2002




TB Rates in San Francisco by Age Group
1990 - 2002
Age 0-4
Age 5-14
Age 15-24
Age 25-44
Age 45-64
Age 65+
Rate per 100,000
0
10
20
30
40
50
60
70
80
90
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
Year

2002 Profile of TB in San Francisco

- HIV/ TB:
  - ~20% of all cases (2000:10.6%, 2001:7.1%)
- Social Factors:
  - Homelessness: 26% (more than doubled from previous years)
  - Substance abuse: 11-15% (increase over previous years ~5%)
- Drug Resistance:
  - INH: essentially stable for past decade at ~10%
  - MDR: 4 cases in 2002 (~3%, 2001:4 cases, 2000: 0 cases)

2002 Profile of TB Cases in San Francisco

Ethnic Diversity:

- 68% are foreign-born
- 1 in 3 cases is ethnic Chinese
- 90% of foreign-born cases are from China, Philippines, and Southeast Asia
- African Americans with highest rate in SF: 31/100/000 population, 80% homeless, 60%HIV+, 52% both homeless and HIV+

2002: Change in the Epidemiology

HIV/TB: ~20% all cases (more than doubled from 2001)

Homeless cases up by 65%

- 2002: 38/146 (26%)
- 56% are from shelters
- HIV co-infection: 47%
- 53% African American
- 87% US-born
- DNA fingerprinting indicates high transmission rate

p009 "Waves"

	1995-1997 (%) N=23	2001-2002 (%) N=18	P-value
Ave. Age at Dx	39yrs (27-63)	46yrs (34-66)	**0.0089**
Male	20 (87.0)	12 (66.7)	0.4655
Black Race	15 (65.2)	12 (66.7)	0.9547
White Race	8 (34.8)	5 (27.8)	0.6926
U.S.-born	23 (100.0)	16 (88.9)	0.7173
Homeless	10 (43.5)	14 (77.8)	0.1543
HIV+	15 (65.2)	10 (55.6)	0.6942
IDU	9 (39.1)	9 (50.0)	0.6020
Non-IDU	17 (74.0)	9 (50.0)	0.3399
EtOH	8 (34.8)	4 (22.2)	0.4608

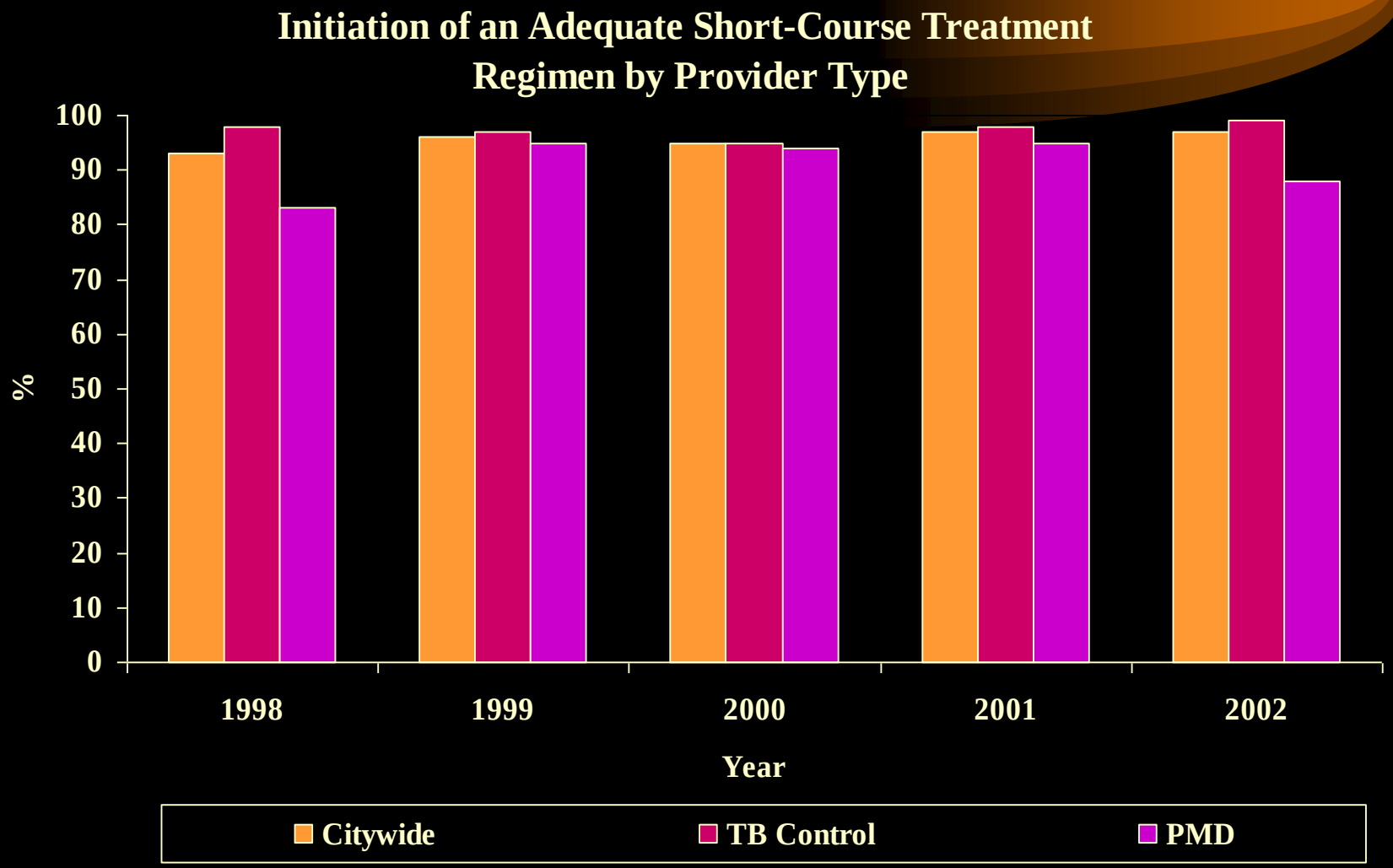
p009 Homeless Residence at Diagnosis

Case	Date Report	Residence(s)
1	07/23/2001	Boston Hotel
2	10/23/2001	Episcopal
3	10/26/2001	Episcopal
4	10/31/2001	Unknown
5	11/06/2001	Various Shelters, Gayland Hotel, King Hotel (Oakland)
6	11/16/2001	SRO (Name Unknown)
7	11/26/2001	MSC South
8	12/17/2001	Episcopal
9	12/20/2001	MSC South
10	02/19/2002	MSC South
11	04/25/2002	A Man’s Place
12	07/05/2002	SRO (Name Unknown)
13	05/23/2002	Episcopal, A Man’s Place
14	08/21/2002	St. Bonifacio

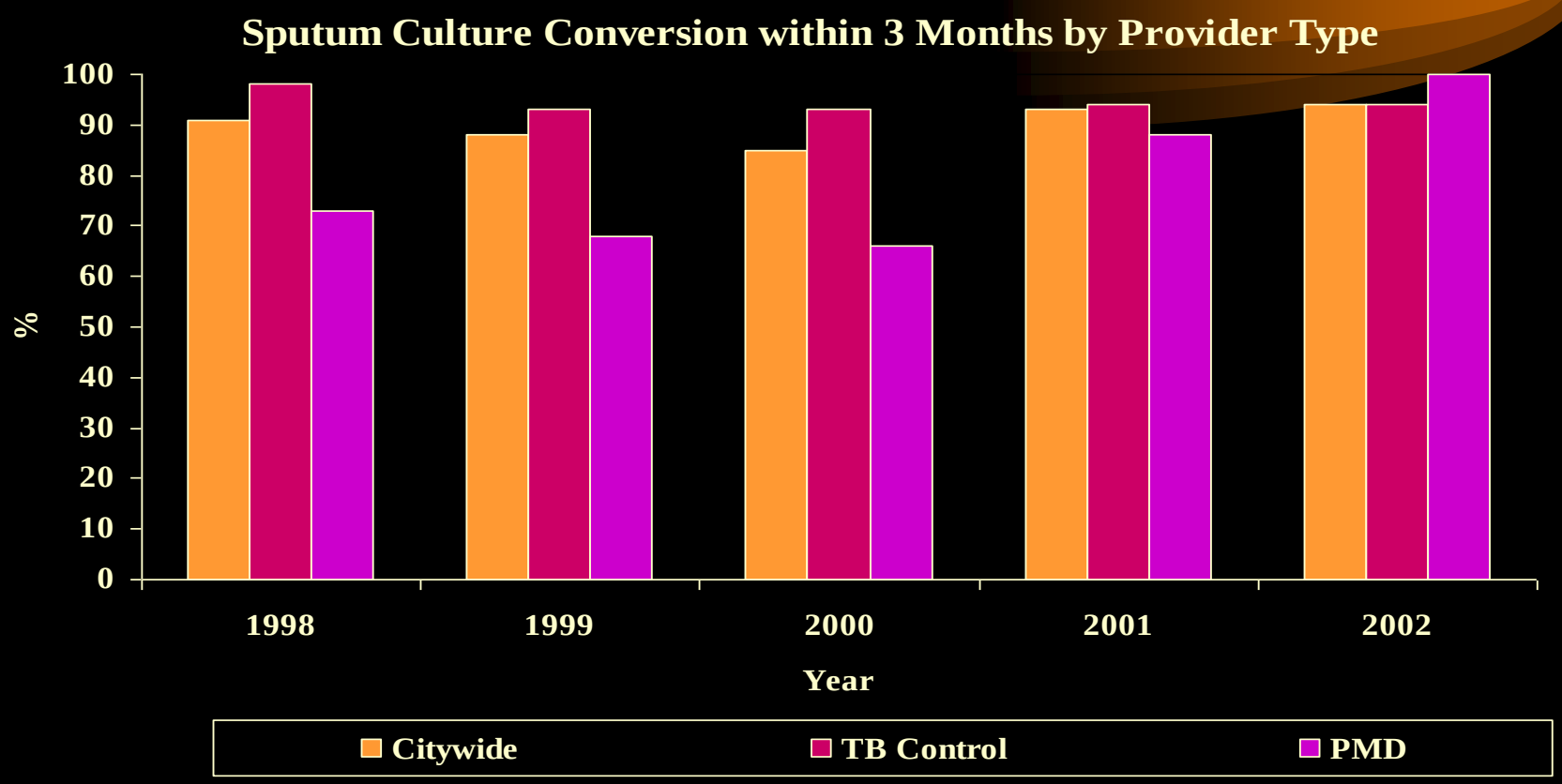
TB Indicators: Timeliness of Treatment

- Time to treatment initiation from AFB smear+ specimen collection
- Goal: Within 4 days
  - Citywide average: 1 day
  - TB Control: 1 day
  - Private Provider: 1 day

TB Indicators: Adequacy of Treatment

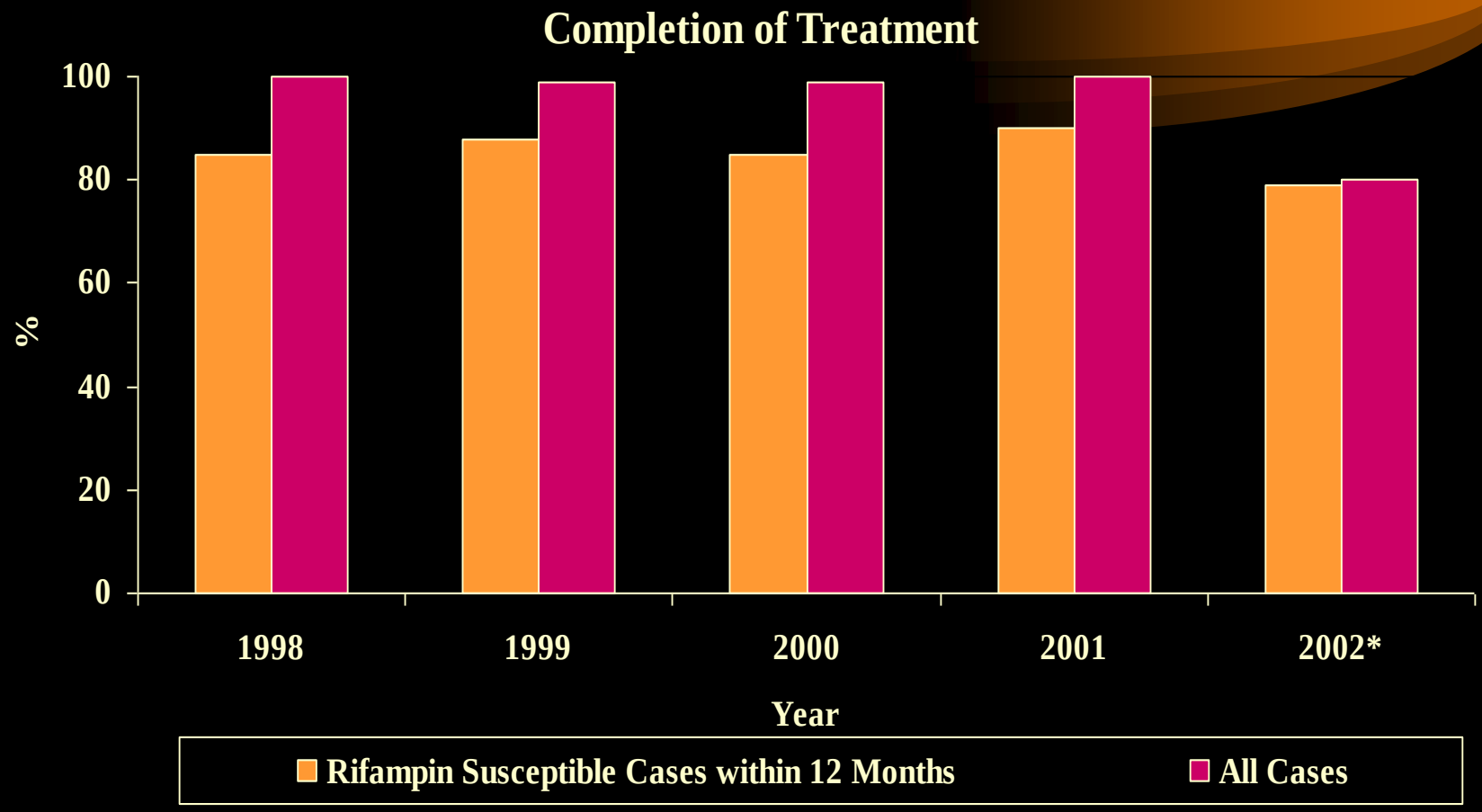


TB Indicators: Sputum Conversion



California 2004 Objective: 70%

TB Indicators: Completion of Therapy



*2002: 24 cases pending treatment, 22 RIF-susceptible are pending treatment

TB Indicators: Treatment Management

- Acquired Drug Resistance:
  - 1999-2000: 1 case of INH resistance in 1999
- Management of Drug Resistant Cases:
  - 11 cases reviewed for 2002
    - Only one case managed by PMD
  - No management errors observed
- Conclusions:
  - Management of drug resistant cases has improved

Contact Identification

- Goal:
  - Contacts identified for >95% of smear+ cases
  - Objective met since 1997
- AFB Smear-Positive Cases
  - Cases with Zero Contacts: 0 (2001: 2 cases)
  - Median Contacts per Case: 5
- All Cases
  - Contact Disease: 10 cases

Contact Investigation: Case Assessment / Interview

- Goals:
  - Conduct case assessment within 1 working day
  - Conduct case interview within 3 working days for sm+ and 7 days for sm- cases
- Objective met for the past 4 years
- Median time between report and interview: 1 day

Contact Investigation: Contact Evaluation

- Goal:
  - 95% of contacts to smear+ cases will be evaluated for infection and disease
- Objective met in 2002:
  - 96% evaluated

Contact Investigation: Initiation of LTBI Treatment

Time Period	Number of Contacts Eligible for Treatment		Number and (%) Contacts Starting Treatment	
	< 15 years old	≥ 15 years old	< 15 years old	≥ 15 years old
2001	12	400	12 (100)	310 (78)
2002	11	215	11 (100)	156 (73)
Jan-June 2003	12	162	11 (92)	104 (64)

Goal: 95% <15 yrs of age, 75% >15 yrs of age

Objective NOT Met for >15 years old!

Contact Investigation: LTBI Treatment Completion

- *Goals:*
  - *AFB Smear+ and Smear-/Culture+*
    - 95% (<15 yrs old)
    - 85% (>=15 yrs old)
- Objectives not met for 2000 or 2001.
  - Intensified contact oversight began in mid-2000.
- Projected completion rates for 2002
  - >=15 yrs for 2002 is ~ 78%
  - <15 yrs = 80% (2 contacts did not complete)

Age 0 –14 years

Year	Total Start Rx	Number Completing LTBI Therapy (% - exclusions)
2001	9	6 (75%)
2002	10	8 (80%)

Age 15+ years

Year	Total Start Rx	Number Completing LTBI Therapy (% - exclusions)
2001	274	211 (79)
2002	130	87* (69)

*12 patients are still on therapy

Active Case Finding: B-Notification Program

Year	Evaluated		TB Cases		Infected		Eligible for LTBI Tx		Started on LTBI Tx		Completed LTBI Tx	
	N	%	N	%	N	%	N	%	N	%	N	%
1999	218	93	19	9	165	76	131	79	96	73	81	84
2000	297	88	19	6	243	82	181	74	160	88	132	83
2001	267	91	17	6	223	84	165	74	156	95	128	82
2002	219	89	14	6	172	79	127	74	112	88	89	79

- Goals:
  - 90% evaluation **almost met in 2002**
  - 95% placement of eligible on LTBI Rx **not met in 2002**
  - 75% will complete LTBI Rx **met**

Active Case Finding: Jail Screening Program

- 13,604 inmates screened
- CJ-1/ CJ-8 screening:
  - TST screening increased by 41% (6965 inmates screened)
  - 56% of TSTs placed were read (slight decrease from 2001)
  - 8.2% TST+ (does not include those with +TST)
- No cases identified in 2001 or 2002.

Surveillance

- Goals
  - Report all verified cases of TB to the State and CDC on a monthly basis
  - 95% completeness of data entry of RVCT variables
  - Review all death certificates
  - HIV/AID and TB registry matches
- ALL GOALS MET 100%

Targeted Testing and Treatment: Referrals

Year	Total Referred	Evaluated		TB 5 Suspects		Confirmed Cases (TB 3)		LTBI TB2/TB4	
		#	%	#	%	#	%	#	%
1999	2791	2758	99	133	5	60	2	2485	90
2000	3033	2974	98	131	4	59	2	2690	90
2001	3393	3224	95	120	4	55	2	3017	94
2002	3844	3658	95	173	5	91	2	3396	93

- Goal: Increase referrals by 2% annually
  - 12-13% increases in 2001 and 2002

Targeted Testing and Treatment: LTBI Treatment Completion

					Reasons for Incomplete Treatment				
Year	Started on LTBI Rx		Completed LTBI Rx		Exclude DC/MD/ ADV	Died	Moved	Lost/Self Stop/Other	No Rx
	#	%	#	%					
1999	1656	66	1195	76	18	2	65	376	829
2000	1760	65	1171	70	18	0	72	499	930
2001	2017	67	1382	72	30	2	70	533	944
2002	2124	63	1371	67*	17	1	57	397	1272

*280 patients still on treatment

- Goal: >75% completed treatment
- 2002 projected rate: ~80%

Targeted Testing and Treatment: CHOPS

Year	Total LTBI Tx	Completed	Exclude Reasons	Incomplete Tx (Do not Exclude)	Still on Tx
2000 (Sept-Dec)	275	248 (90%)	9	18	0
2001	486	440 (91%)	8	38	0
2002	495	426 (86%)	4	31	34

- 834 DOT visits, 32 DOPT visits, 2582 refills, and 1,432 TSTs placed and read
- ~ one third of all pts on LTBI Tx refill at CHOPS

CHOPS: TST Results, 2002

Age Group	PPDs read	PPD Positive	
		#	%
0-15	387	82	21
16-30	203	70	34
31-45	191	76	40
46-60	165	86	52
>60	70	36	51
Total	1016	350	34

Targeted Testing and Treatment: South of Market Health Center

Year	Referrals for…									Total %
	Filipino			Other Foreign-Born			US-Born			
	# Identified	# Screened	%	# Identified	# Screened	%	# Identified	# Screened	%	
1999	6	4	94	8	6	75	20	8	30	47
2000	159	122	77	134	107	80	774	616	80	79
2001	105	90	86	104	81	78	708	557	79	79
2002	138	119	86	119	106	89	591	495	84	85

- Total initiating LTBI Rx: 58 (51%)
- Projected rate of LTBI completion: 76%

Targeted Testing and Treatment:
Methadone Treatment Programs (HRTP)

- 100% of those enrolled in 2002 were screened for TB
- 93% completed evaluation within 4 weeks of screening
- Total Initiating LTBI Rx: 18 (86%)
- Completion of LTBI Rx: 17 (94%)

Targeted Testing and Treatment:

TOPS

TOPS TB Screening: Homeless Shelters[1]

	Year					
	2001	(%)	**2002**	(%)	**Jan - June 2003**	(%)
Total Identified	**1111**	(100)	**1101**	(100)	**472**	(100)
History of Positive PPD	**125**	(11)	**122**	(11)	**46**	(10)
PPDs Placed	**986**	(89)	**979**	(89)	**422**	(89)
PPDs Read	**875**	(89)	**887**	(91)	**369**	(87)
PPD Positive	**268**	(31)	**259**	(29)	**70**	(19)
PPD Negative	**607**	(69)	**628**	(71)	**299**	(81)
Total Screened[2]	**1000**	(90)	**1009**	(92)	**415**	(88)

Targeted Testing and Treatment:

TOPS

	2001 (%)	2002 (%)
Total Started on Treatment	255 (100)	188 (100)
Completed Treatment	137 (54)	126 (67)
% Completed w/ Exclusions	94%	77%
Completed by DOPT	98 (54)	94 (66)
Comp by DOPT w/ Exclusions	95%	79%
Completed by SAT	39 (53)	32 (70)
Comp by SAT w/ Exclusions	91%	71%

January – June 2003: Case Counts

- Increase in Cases: Jan – June = 87 cases
  - increase in foreign-born cases (Philippines?)
  - decrease in U.S.-born, homeless cases
- At current rate – total for 2003 will be 160-175 cases
- Where are the cases coming from:
  - no change in # identified through B-notification (~6%)
  - no change in # identified through contact investigation (~1% of contacts to smear+ cases)
  - increase in the cases identified through targeted testing (2% TB3 1999-2002, 4% Jan – June 2003)

San Francisco TB Control:
Philosophic Approach

patient centered approach:

“Patients Come First”

innovation:

“Push the Envelope”

standards of excellence:

“Polish and Refine”

How are we doing?

- Core activities: Excellent and we continue to improve (PMD sputum conversion, contact LTBI completion rates)

- Areas to intensify: Homeless TB Control

Past Homeless TB strategies and programs

TOPS: Intensified community outreach and screening site (1994)

- DOT/DOPT
- Community education
- MOUs with CBOsTB control HWs in largest shelters 2Xs/week

Community TB Taskforce (early 1990s, still active)

- TB shelter guidelines
- SRO hotel TB guidelines
- 2002 focus on improving communication among homeless health providers about active cases in the community

Current Homeless TB Control Activities

Goal: Reduce TB transmission in shelters through intensified active case finding and improved contact investigation

Problem:

- Shelters that do not have long-term beds (>1 week) do not require TB screening
- Symptom screening upon entry cannot be done by non-medical staff
- An estimated 10-20% of chronic shelter users may be HIV positive. 80% of the client population is stable

Reducing TB Transmission in Shelters

Strategies:

Policy change

- Institute a cough alert protocol for early evaluation of coughing client (done)
- Mandatory TB screening of all shelter clients (done)
- Give priority to HIV+ clients to obtain long term shelter beds. Promote the use of long term beds for all.
- Formally merging with existing homeless healthcare infrastructure in shelters and downtown community sites to address TB screening and HIV care (currently being implemented)

Reducing TB Transmission in Shelters

Strategies cont….

Clinical

- Onsite TB control staff at shelters for TB testing (quantiFERON) and DOPT
- Coordinate medical evaluation of suspects with shelter health care providers
- Designating shelter-TB control liaisons to expedite TB work-up of suspects

How are we doing?

Targeted Testing:

- Improving overall but not consistent (numbers of patients low for TOPS DOPT)
- What do we need to continue to work on?
  - Increase the number of eligible patients (contacts, b-notifications, referrals) placed LTBI treatment.
  - Increase the number of patients (contacts, U.S.-born referrals) completing LTBI treatment.
- Areas to focus and intensify:

  Increase community and provider TB awareness

Strategies: Targeted Testing Programs

Community Referral Program: Network of community health centers and clinics perform targeted testing and refer all TB suspects and those with LTBI to central TB Control program clinic for medical evaluation and treatment.

Community TB Control Programs:

- Independent TB Control Community site: TOPS
- Collaboration/partnership with community health center: CHOPS

Strategies: Foreign-born TB

1980's

- New immigrant B-notification follow-up
- Refugee program collaboration
- Community clinic targeted testing and referral

1990s

- Filipino veteran project
- HMO MOUs

2000 -2002

- Chinatown community collaboration (CHOPS)
- Intensified screening education of community providers

Our future…..

As our case load declines we must manage each case with intensity and without error .

- **PMD and SA case management:**

  Establish management check points

  Develop systematic review process

- **US born and Homeless contact investigation:**

  Routine contact cohort reviews with the TB Controller

✓ solicit info on homeless contacts and cases through systematic electronic communication with homeless providers

✓ DOPT for homeless contacts

Our future…..

Elimination of TB in San Francisco will require a consistent, vigilant and sustained effort on reducing the TB reservoir in impoverished communities and the foreign born.

- **TT:** MDs must increase the number of eligible patients placed LTBI treatment(contacts, b-notifications, referrals)
- **LTBI and contact case management:**

  HWs: INTENSIFY follow up on delinquent
- **Provider and community awareness:**

✓ Increase communication with community clinics and health plans

✓ Maintain and increase community in-services and training

Our future…..

Reinforcing our foundation by using knowledge and current technology is essential to our program's sustainability….

- Modern program management database
- Implementing TB blood testing in SF
- establishing and organizing policies and procedures
- establishing systematic and better internal communications
- continuing to participate in cutting edge research and maintaining partnership with UCSF

Acknowledgements

- ALL CLERKS
- WARD 94:

  Houmpheng

  Janice

  Jennifer

  Bob F (HRTP, TT)

  Tamara

  Tony
- TOPS

  Candy

  Sheila
- CHOPS

  Lin Mey

  Quyen
- JAILS

  Tom H

To a world class TB Control team:

Congratulations on a job well done!!!